Regionalism, Federalism, and Taxation: A Food and Farm Perspective. By Patrick Canning and Marinos Tsigas. Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Technical Bulletin No. 1882.

Abstract

This report documents an applied general equilibrium model of the United States. The model features explicit treatment of Federal, State, and local taxes and is segmented into 10 distinct subregions. These subregions engage in inter- and intraregional trade, as well as international trade. Each region is distinguished by its unique composition of industries, capital markets, and patterns of trade. Regional data developed for calibrating the model are discussed and several tax policy reform simulations demonstrate the modeling capabilities.

Keywords: Cost of capital, fiscal policy, marginal effective tax rate, regional applied general equilibrium, regional household welfare, State and Federal taxation and reform.

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Summary

In the United States, the tax system is multilayered. It includes a central Federal tax system and State and other local tax systems. Reform of these systems has always been part of the national economic policy debate. In this report, we document a model developed to assess the economic effects of taxation in the United States, and we simulate a tax reform to illustrate its multiple effects on economic performance in different regions. While the model is economywide, special attention is given to regional economies, food and farm industries, and the food consumer.

For modeling purposes, we segmented the U.S. economy into 10 distinct economic regions, and the model accounts for regional economic performance and regional household well-being. Prominent features of the model include the explicit treatment of local, State, and Federal taxes and the existence of several subnational regions that engage in inter- and intraregional trade, as well as in international trade. Each region is distinguished by its unique composition of industries, disposition of capital factor markets, and patterns of trade. These distinguishing characteristics also create a unique relationship in each region with the U.S. tax system.

Some stylized facts about tax burdens on primary factors of production in our 1994 tax year simulations are noteworthy. Concerning effective marginal tax burdens at the Federal level, agriculture is the most lightly taxed nonresidential industry, while food manufacturing is among the most highly taxed industries. Regionally, the Delta and Northeastern States realized the lowest effective marginal Federal tax rates on farm capital, while the Appalachian and Southeastern States have the highest effective marginal Federal taxes on food manufacturing capital. Concerning effective marginal tax burdens among State governments, agriculture is the most heavily taxed nonresidential industry, while food manufacturing is near the bottom. The highest food manufacturing State effective marginal rates are in the Northeast and Lake States, while the lowest are in the Southeast and Appalachian States.

Tables and figures in the report present detailed information on the value of different capital inputs used in production for each industry, recognizing the possibility of 15 distinct types of production inputs. The 10 U.S. regions and a region representing the rest of the world each engage in the production of seven products (capital-intensive agriculture, other agriculture, capital-intensive food manufacturing, other food manufacturing, capital-intensive other manufacturing, other manufacturing, and other industry output). These products can be traced to a far more detailed list of goods and services produced by industry and consumed by private households. The model allocates production, consumption, and tax burdens of the products to regional industries and households in proportions consistent with the more detailed array of goods and services actually produced and consumed. The 11 regions, 7 products, and 15 primary factors of production lead to more than 1,000 distinct primary factor tax wedges. With trade taxation also represented, as well as household taxation, a comprehensive account of the multiple impacts from taxation is obtained.

The complexity and diversity of industry, households, and the tax system lead to many different consequences from taxation. With multiple tax policies and multiple levels of government administering tax policy, many conflicting and complementing effects of these taxes are realized to varying degrees across industries, households, and regions. Current tax policy and several variations of fundamental tax reform are considered and found to affect magnitudes and distributions of several economic indexes. These effects varied across regional households, inter- and intraregional industry aggregates, asset portfolios, terms of regional and international trade, and relative consumer price and consumption patterns. The report concludes with a comprehensive analysis and breakdown of these effects, along with consideration of alternative tax reform scenarios (unilateral Federal reform and harmonized Federal and State tax reform). Regional economies, food and farm industries, and food consumers are featured in these discussions. These simulations, while not intended to represent specific reform proposal scenarios, do effectively demonstrate the extensive analytical capabilities made available with this new modeling resource.